

EXHIBIT B

**IN THE UNITED STATES DISTRICT COURT
DISTRICT OF DELAWARE**

IPA TECHNOLOGIES, INC.,

Plaintiff,

v.

AMAZON.COM, INC. and AMAZON DIGITAL
SERVICES LLC,

Defendants.

C.A. No. 1:16-CV-01266-RGA-SRF

IPA TECHNOLOGIES, INC.,

Plaintiff,

v.

GOOGLE LLC,

Defendant.

C.A. No. 1:18-CV-00318-RGA-SRF

IPA TECHNOLOGIES, INC.,

Plaintiff,

v.

MICROSOFT CORPORATION,

Defendant.

C.A. No. 1:18-CV-00001-RGA-SRF

DEFENDANTS' PRELIMINARY INVALIDITY CONTENTIONS

System/Service	Relevant Dates	Persons/Entities Involved in Prior Use, Sale, and/or Offers for Sale	Short Cite
		and also offered for sale and/or sold to its customers this system as evidenced at least by the documents identified herein.	
COMTEC	Pre-1999	COMTEC designed, developed, used, advertised, published, and also offered for sale and/or sold to its customers this system as evidenced at least by the documents identified herein.	“COMTEC”
PRODIGY	Pre-1999	DARPA and CMU, designed, developed, used, advertised, published, and also offered for sale and/or sold to its customers this system as evidenced at least by the documents identified herein.	“PRODIGY”

e. Motivation for Combining Identified Combinations of Prior Art

The combinations of references provided in the accompanying prior art reference charts in Exhibits A-1 through A-24 in combination with A-X are exemplary and are not intended to be exhaustive. Additional obviousness combinations of the references identified here are possible, and Defendants may rely on such combination(s) in this litigation. In particular, Defendants are currently unaware of IPA's allegations with respect to the level of skill in the art and the qualifications of the typical person of ordinary skill in the art. Defendants are also unaware of the extent, if any, to which IPA may contend that limitations of the claims at issue are not disclosed in

the prior art identified by Defendants as anticipatory, and the extent to which IPA will contend that elements not disclosed in the asserted patent specifications would have been known to persons of skill in the art. And Defendants do not yet know how the Court will construe terms in the Asserted Claims. Defendants are also awaiting third-party discovery and are continuing their investigation of the large universe of prior art to identify potential prior art systems, publications related to those systems, and additional third-parties that may have information about those systems. Defendants reserve the right to supplement these contentions to identify other prior art and combinations that would have made such limitations obvious.

The references listed above, alone or in combination, contain an explicit and/or implicit teaching, suggestion, and/or reasons to combine them for at least the following reasons.³⁸

The Asserted Patents are invalid in view of any combination of references related to SRI's Open Agent Architecture, including, for example, OAA 1.0, OAA Tutorial, OAA Agents, PAAM 98 Tutorial, Feb 1998 OAA Presentation, Martin, Cohen, Cheyer, Multimodal Maps (Paper), Moran, OAA CNET Demonstration, InfoWorld Automated Office, OAA CARS Demo, OAA CARS Video, Multimodal Maps (Web Capture), Multimodal Maps Demo, MVIEW, and any other application or implementation of the Open Agent Architecture (collectively "OAA Prior Art"). Each of these references relate to the same software agent architecture developed by inventors of the Asserted Patents at SRI International. A person having ordinary skill in the art would have

³⁸ In *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398 (2007), the Supreme Court held that prior art need not disclose the precise teachings of a patented invention to render it obvious, because a court "can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *Id.* at 418. Under *KSR*, an explanation for why a combination of prior art items renders a claim obvious may be found in the "interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art." *Id.* at 418.

been motivated to combine any of the OAA Prior Art. All of these references disclose the use of facilitator agents, user interface agents, and service-providing agents that communicate using an Interagent Communication Language (ICL) to solve user requests, which may take the form of compound goal expressions that are divided into sub-goals and delegated to appropriate agents. *See, e.g.*, OAA Tutorial at 1 (identifying “Open Agent Architecture (OAA) is a multi-agent framework . . . [with a] Facilitator agent [that] coordinates the agent community in achieving the task, providing services such as parallelism, failure handling, conflict detection, and so forth . . . us[ing] [] the Interagent Communication Language [(“ICL”)]”); OAA Agents at 1 (identifying a few of the “more than 100 agents” that operate within the Open Agent Architecture); PAAM ’98 Tutorial at 13 (illustrating agents that communicate with a facilitator using ICL in the OAA Architecture); PAAM ’98 Tutorial at 16 and 71 (identifying OAA implementations including Automated Office, Unified Message, Multimodal Maps, Agent Development Tools, MVIEWS, among many others); Cohen at 1 (identifying the “Open Agent Architecture [a]s a blackboard-based framework allowing individual software ‘client’ agents to communicate by means of goals”); Multimodal Maps (Paper) at 7 (identifying “Open Agent Architecture” as “a framework for coordinating a society of agents . . . [using] [a]n Interagent Communication Language”). A person having ordinary skill in the art would naturally look to the teachings of any OAA Prior Art to solve problems and combine proposed solutions. SRI International also educated the persons of skill in the art about the design, development, functionality, and implementations of its Open Agent Architecture through numerous publications and demonstrations between 1994 and 1997. *See, e.g.*, Cohen (paper dated 1994); Adam Cheyer Demos, *available at* <http://www.adam.cheyer.com/demos.html> (identifying numerous open agent architecture demonstrations between 1994 and 1997); OAA Tutorial at PAAM-98, Vol 2, no. 1 (January 1,

1998), *available at* <http://www.ai.sri.com/~oaa/news/news-v2.1.html> (publicly disclosing and presenting a presentation on the details of the Open Agent Architecture at the Third International Conference on the Practical Application of Intelligent Agents held in London in 1998); Adam Cheyer, FIPA Report (July 1, 1996), *available at* <http://www.ai.sri.com/~oaa/distribution/MailArchive/oaa-users/0003.html> (confirming that Adam Cheyer attended the 2nd FIPA (Foundation for Intelligent Physical Agents) conference in Yorktown, New York in 1996 and publicly disclosed details of SRI's Open Agent Architecture). Additionally, many of the OAA Prior Art references identify the same authors. A person having ordinary skill in the art would naturally consider other papers, publications, demonstrations, and systems prepared by the same authors.

The asserted patents are also invalid in view of any combination of references related to the KQML and KIF software agent architecture, including, for example, Singh, Genesereth '97, Genesereth '94, Finin I, Finin II, Labrou, InfoSleuth, RETSINA, and any other application or implementation of KQML and KIF (collectively "KQML/KIF Prior Art"). A person having ordinary skill in the art would have been motivated to combine any of the KQML/KIF Prior Art. These references disclose the use of the same Agent Communication Language ("ACL") that uses KQML (Knowledge Query and Manipulation Language) as the "outer" language and KIF (Knowledge Interchange Format) as the "inner" language or vocabulary. *See, e.g.*, Genesereth '97 at 322; Genesereth '94 at 49; Singh at 347-348. The ACL enables one or more facilitators agents to coordinate the activities of connected agents and solve requests by synthesizing a plan that may require decomposing a complex request into a collection of sub-goals and delegating the sub-goals to appropriate agents. *See, e.g.*, Finin II at 1-2; Genesereth '97 at 334; Genesereth '94 at 51; Singh at 339, 345, 354, 356, 358; Labrou at 1. A person having ordinary skill in the art would

naturally look to the teachings of any KQML/KIF Prior Art to solve problems and combine proposed solutions. Indeed, persons of skill in the art maintained publicly available knowledge sharing websites that identified, described, and shared designs and implementations related to the KQML and KIF software architecture. *See, e.g.,* “KQML,” University of Maryland, Baltimore County, *available at* <https://www.csee.umbc.edu/csee/research/kqml/> (identifying KQML papers, software and applications); “Knowledge Sharing Effort, University of Maryland, Baltimore County, *available at* <https://www.csee.umbc.edu/csee/research/kse/> (identifying a ARPA-sponsored knowledge sharing effort related to KQML and KIF); Knowledge Sharing Effort public library, Stanford University, *available at* <http://www-ksl.stanford.edu/knowledge-sharing/> (identifying KQML and KIF implementations as part of the ARPA Knowledge Sharing Effort). Additionally, many of the KQML/KIF Prior Art references identify the same authors. A person having ordinary skill in the art would naturally consider other papers, publications, demonstrations, and systems prepared by the same authors.

The asserted patents are also invalid in view of any combination of references related to OAA Prior Art, KQML/KIF Prior Art, FIPA 97, MECCA, Nodine, Bradshaw, Busetta, Nodine, Bayardo, Bian, Malone, Urban, General Magic, White, and any other architecture that implements an agent communication language. A person having ordinary skill in the art would have been motivated to consult and combine the teachings related to these various communication languages to solve problems in another agent communication language. For example, knowledge sharing and collaboration among developers of the various agent communication languages was a central focus of numerous organizations that led international conferences, including, for example, the Practical Application of Intelligent Agents and Multi-Agent Technology (PAAM), the Foundation for Intelligent Physical Agents (FIPA), the Association for the Advancement of Artificial

Intelligence (AAAI), and Agent Theories, Architectures, and Languages (ATAL), among others.

See, e.g., OAA 2.0 Tutorial at PAAM-98, *available at* <http://www.ai.sri.com/~oaa/news/news-v2.1.html>; FIPA History, *available at* http://leonardo.chiariglione.org/standards/fipa/fipa_history.htm; ATAL 98, *available at* <http://mas.cs.umass.edu/atal/workshops/atal98/index.html>; AAAI-97, *available at* <http://www.aaai.org/Press/Proceedings/aaai97.php>. Participants of these conferences included significant industry player such as IBM, Philips, Siemens, Nokia, Alcatel, France Telecom, Sony, British Telecom, Lucent, and SRI International. *See, e.g.,* FIPA NY Attendance, *available at* <http://leonardo.chiariglione.org/standards/fipa/yorktown/nyattendance.htm>. These participants routinely shared papers, systems, and other information related to their software agent technology, which often formed the basis for improvements and the development of other standards such as FIPA 1997. *See, e.g.,* Adam Cheyer, FIPA Report (July 1, 1996), *available at* <http://www.ai.sri.com/~oaa/distribution/MailArchive/oaa-users/0003.html> (Adam Cheyer summarizing various software agent architectures disclosed at the 2nd FIPA (Foundation for Intelligent Physical Agents) conference in Yorktown, New York in 1996); http://leonardo.chiariglione.org/standards/fipa/fipa_history.htm; FIPA Agent Basic Capability List, *available at* <http://leonardo.chiariglione.org/standards/fipa/yorktown/nyframework.htm> (identifying KQML and KIF as the early foundation for the FIPA specification). Thus, it was common practice for persons having ordinary skill in the art to learn about, consult the teachings of, and implement improvements from the broad array of agent communication languages, architectures, and implementations.

The asserted patents are also invalid in view of any combination of references related to OAA Prior Art, KQML/KIF Prior Art, FIPA 97, MECCA, General Magic and any other agent

communication language that is structured in a similar way. For example, each of these agent communication languages include a conversation layer (specifying events and parameters) and a content layer (specifying goals and/or data) similar to the ICL disclosed by the '115 patent. *See, e.g.*, PAAM '98 Tutorial at 29 (identifying event "oaa_Solve," parameter "query(var(P)),") goals "manager()" and "phone_number()" and data "John Bear," "M" and "P."); Finin I, slide 49 (identifying event "tell," parameter "ontology ecbk12," goal "price," and data "ISBN3429459,24.95"); FIPA 97, Part 2 (identifying event "inform," parameters "receiver hpl-auction-server" and "ontology hpl-auction," goal "price()" and data "bid good02" and "150"); MECCA at 262 (identifying an event "e," parameters "executing agent," "i-th resource," and "set of constraints on i-th resource," and goal "action to be executed"). A person having ordinary skill in the art would naturally consult and combine teachings of agent communication languages that are structured in a similar way.

The prior art also acknowledged that different agent communication languages could also interoperate. *See, e.g.*, Automated Office at 1:40-1:47 ("This simple interaction style could also be programmed using other distributed technologies available today such as CORBA or Telescript); Genesereth '94 at 50-51 (identifying a "transducer" or "wrapper" that accepts messages from non-native agents and converts those messages into the native agent communication language of the architecture). Thus, a person having ordinary skill in the art would have also been motivated to consult and combine teachings of agent communication languages that may be structured in a different way.

Additionally, the references identified in Section II.A.3., *supra*, all concern the same technological field as the Asserted Patents. In particular, each of the references is directed to the field of software agent architectures and distributed systems. *See, e.g.*, PAAM '98 Tutorial at 4

(SRI presentation describing the Open Agent Architecture, KQML and FIPA as enabling “[c]ooperation among distributed heterogeneous programmatic components.”); Kiss at 2:43-2:67 (“Interaction between a user and the knowledge resources is mediated by a collection of cooperative intelligent agents. The cooperative intelligent agents incorporate generalized automated negotiation and distributed inference (i.e., problem-solving) processes.”); Malone at Title (“Agents for Information Sharing and Coordination: A History and Some Reflections”); Pollock at 1:39-45 (“integrating the system of defeasible reasoning into an artificial agent that is also capable of planning and executing plans”); Steiner at Abstract (“A Personal Digital Location Apparatus for displaying a geographical location as an icon on a map”). One of ordinary skill in the art would understand these references to all be part of the same field of technology as the Asserted Patents and would naturally look to their teachings to find answers to the problems inherent in the respective technologies. *See, e.g.*, ’115 patent, Abstract (“A highly flexible, software-based architecture is disclosed for constructing distributed systems”); 1:22-27 (identifying “Field of the Invention” and the “present invention” as “related to distributed computing environments and the completion of tasks within such environments.”); *see also* ’128 patent, 1:18-22.

These are only a few examples of the references that one of ordinary skill in the art would consider to be part of the same body of work and in the same technical field and is not meant to be limiting.

Accordingly, a person of ordinary skill in the art at the time of filing of the Asserted Patents would have been motivated to combine elements of any of the references identified here and recognize that the combination of any of these references is a predictable use of elements known in the art to solve a known problem and a use of known techniques to solve a known problem in

the same way. Defendants' expert(s) may further explain the motivation to combine prior art and why the Asserted Claims of the Asserted Patents are invalid for obviousness in accordance with the case schedule.

4. INVALIDITY UNDER § 112

The Asserted Claims are invalid under 35 U.S.C. § 112. The Asserted Claims lack a written description and enabling disclosure commensurate with the alleged scope of the claims, are unduly vague and indefinite, and contain purely functional language. The Asserted Patents, read in light of the specification and prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention. *See Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2124 (2014). The Asserted Patents do not enable one of skill in the art to practice the full scope of the inventions claimed without undue experimentation. The Asserted Patents do not enable one of skill in the art to practice the scope of the inventions set forth in IPA's preliminary infringement contentions.

Because expert disclosures are not yet due, including those in connection with claim construction, Defendants reserve the right to raise any additional issues from the perspective of one skilled in the art at the appropriate time in the case.

The following identification of claims/claim elements are preliminary and only exemplary and Defendants reserve the right to supplement the identification of claims and claim elements that do not comply with the requirements of 35 U.S.C. § 112. Specifically, to the extent an element identified below, or its variation, appears in claims other than the ones specified below, it also renders those additional claims invalid under 35 U.S.C. § 112. Claims that depend on these additional claims and on the claims identified below are also invalid under 35 U.S.C. § 112. Defendants reserve the right to identify additional claims and claim elements that do not comply with the requirements of 35 U.S.C. § 112 during claim construction or after the Court construes

TABLE OF EXHIBITS

Exhibit	Description
A	Invalidity Charts for the '115 patent
B	Invalidity Charts for the '128 patent
C	Invalidity Charts for the '560 patent
D	Prior Art Reflecting the General State of the Art

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Respectfully submitted,

/s/ Steven J. Balick

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